REMARKS

Applicants amend claims 1, 26, 31, 45, 51, and 52, as indicated in the above listing of the claims. Various grounds of rejection are discussed in detail below. The application is believed to be in condition for allowance. Reconsideration and allowance are respectfully requested.

Specification

In response to the previous Office Action, the specification was amended to include the serial number of the parent application, still pending, from which the present application claims priority. The status of the parent application has not changed since the filing of the last response. Accoringly, no additional amendments in this regard are provided.

Rejections Under 35 U.S.C. 102(e)

The Office Action maintains the rejections claims 1, 2, 10-15, 17, 18, 22, 26, 28, 29, 35-45, 47-49 and 51-53 as being anticipated by U.S. Patent Application No. 2003/0012196 of Ramakrishnan.

Claim 1, as amended, recites a network device that comprises a physical layer subsystem for transferring network data in accordance with a physical layer protocol and including a physical layer working port capable of being connected to a first physical network attachment, and an upper layer subsystem for transferring the network data in accordance with an upper layer protocol and coupled with the physical layer subsystem. The physical layer subsystem further includes a physical layer test port coupled to the physical layer subsystem and the upper layer subsystem, which is capable of being connected to a second physical network attachment. The test port is capable of being programmed to function as *a working port for normal data transfer.*

Ramarkrishnan discloses a switch that includes a plurality of input and output ports and an interconnect network that routes data packets received at an input port to an appropriate output port. The switch further comprises one or more monitor ports that can monitor network traffic data received through the respective input ports.

The Examiner refers to paragraphs 25, 27 and 31 of Ramarkrishnan to reject Applicants assertion, presented in the response to the previous Office Action, that Ramarkrishnan fails to teach or suggest that its monitor ports can be programmed to function as working ports (i.e., input or output ports). However, these paragraphs (or any other portion of Ramarkrishnan) do not include any discussion regarding programming the monitor ports to function as normal working ports. In particular, paragraphs 27 and 28 of Ramarkrishnan are simply directed to an embodiment of its switch having multiple monitoring ports that can share the task of monitoring the received traffic, without any indication that the monitor ports can be programmed (either dynamically or statically) to function as working input or output ports for normal data transfer. Moreover, paragraph 31 of Ramarkrishnan indicates that "the characteristics of the interconnection network controlling the routing of data between input ports and monitor output ports can be modified as the traffic patterns of the connected links change over time." These modifications, however, relate to changing the connectivity between the working ports and the monitor ports, and *not* altering the functionality of one or more of the monitor ports into working ports.

In contrast, claim 1 recites that the test port is capable of being programmed to function as a working port. The amendment to claim 1, presented in this response, further elucidates, without changing the claim scope, that a working port is utilized for normal data transfer. Hence, Ramarkrishnan fails to teach at least one salient feature of the network device of claim 1, and its concomitant advantages. For example, in the claimed network device, if more working ports are needed (e.g., as a result of failure of some ports or increased data traffic) the test port can be reprogrammed to be used as a working port for normal data transfer.

Accordingly, claim 1 and claims 2, 10-15, 17, 18, and 22, which depend either directly or indirectly on claim 1, distinguish patentably over Ramarkrishnan.

Independent claim 26 recites a network device that comprises an upper layer subsystem for transferring network data in accordance with an upper layer protocol, a physical layer subsystem for transferring the network data with the upper layer subsystem and including a plurality of ports capable of being connected to physical network attachments, wherein one or more of the ports are designated as physical layer test ports and one or more of the ports are

designated as working ports. At least one of the test ports is capable of being programmed to function as a *working port for normal transfer of data*. The network device further comprises a cross-connection subsystem for transferring the network data between the upper layer subsystem and the working ports and for multicasting a portion of the network data to at least one of the test ports, wherein the cross-connection subsystem is capable of programming the at least one test port to function as a working port.

The arguments presented above apply with equal force to establish that similar to claim 1, claim 26 is also patentable over Ramarkrishnan. In particular, the monitor ports in Ramarkrishnan are not capable of being programmed to function as working ports. Nor is there any indication that the inteconnect network of Ramarkrishnan is capable of programming one or more of its monitor ports to function as working ports.

Accordingly, claim 26 and claims 28 and 29 dependent thereon are also patentable.

Independent claim 35 recites a method of operating a network device, comprising: transferring network data between a physical layer working port within a physical layer subsystem and a physical network attachment capable of being coupled with another network device, transferring network data between the working port and an upper layer subsystem, providing another port within said physical layer subsystem capable of being programmed to function as a test port or another working port, programming said another port to function as a test port, and sending a copy of a portion of the network data transferred between the working port and the upper layer subsystem to the physical layer test port.

The above arguments apply to establish that claim 35 and claims 36-44, which depend on claim 35, are also patentable over the cited reference, as claim 35 includes the step of providing a port that is capable of being programmed to function as a test port or a working port.

Claim 45, as amended, recites a network device that comprises a plurality of ports capable of being connected to external physical network attachments, wherein at least one of the ports is capable of being programmed as a test port or a working port *while the network device is*

operating. Support for the amendment to claim 45 can be found, for example, on page 3 of the specification.

As discussed in detail above, Ramarkrishnan fails to teach programming the monitor ports of its switch to function as working ports, much less doing so while the switch is operating. Hence, claim 45 and claims 47-49, which depend directly or indirectly on claim 45, are patentable.

Similar arguments apply with equal force to establish that claims 51-53 patentably distinguish over Ramarkrishnan, as well.

Rejections Under 35 U.S.C. 103

The Office Action rejects claims 3-7, 16, 19-21, 23-25, 30, 46 and 50 as being obvious over the afore-mentioned Ramarkrishnan reference.

Claims 3-7, 16-21, and 23-25 depend either directly or indirectly on claim 1, claims 30 depends on independent claim 26, and claims 46 and 50 depend on independent claim 45. As discussed in detail above, Ramarkrishnan fails to teach or suggest the salient features of independent claims 1, 26 and 45 (and consequently those of claims that depend on these independent claims), such as a test port that is capable of being programmed to function as a working port.

In Paragraph 57, the Office Action rejects claims 8 and 9 as being obvious over Ramarkrishnan in view of U.S. Patent No. 6,529,473 of Bavant.

Claim 8 depends indirectly (via claim 2) on claim 1, and further recites that a cross-connection subsystem of the network device can include two cross-connection cards. As discussed in detail above, Ramarkrishnan does not teach a test port that is capable of being programmed to function as a working port – a feature of claim 1 and consequently that of claim 8. Bavant does not cure the shortcomings of Ramarkrishnan in this regard. More specifically, Bavant, which is directed to an ATM switch having a distributed architecture, does not teach incorporating within its switch one or more test ports that can be programmed to function as

working ports. Similar arguments apply to establish that claim 9, which depends on claim 8, is also patentable over the combined teachings of Ramarkrishnan and Bavant.

In Paragraph 60, the Office Action rejects claims 31-34 as being obvious over Ramarkrishnan in view of U.S. Patent No. 5,699,348 of Baidon.

Independent claim 31 recites a network device that comprises an upper layer subsystem for transferring network data in accordance with an upper layer protocol, and a physical layer subsystem including a plurality of ports that are capable of being connected to physical network attachments, at least one of which is a test equipment. The ports include a working port and a test port. The network device further comprises a cross-connection subsystem that is coupled to the upper layer subsystem and the physical layer subsystem and is capable of being programmed to transfer the network data between the upper layer subsystem and the working port and to multicast a portion of the network data to the test port. The test port is capable of transmitting test data from the test equipment to any of the physical layer subsystem and the cross-connection subsystem.

In Ramarkrishnan device, the monitor port receives a copy of data from the input or output ports. There is, however, no indication that the monitor port can transmit test data from an external monitor to the input or output ports or the interconnect network element. Baidon does not bridge the gap in the teachings of Ramarkrishnan. Baidon discloses a communications system having a plurality of network elements and a performance management system that receives from the network elements (via ports thereof) statistical parameters regarding errors occurring in data transmission. There is, however, no indication that the performance management system sends data to the network elements. In fact, performance management system does not function as a test equipment for testing the operation of the network elements, and hence has no need to send test data to these elements.

In contrast, claim 31 recites that the test port is capable of transmitting test data from the test equipment to any of the physical layer subsystem and the cross-connection subsystem of the network device.

CONCLUSION

In view of the above amendments and remarks, Applicants respectfully request reconsideration and allowance of the application. Applicants invite the Examiner to call the undersigned at (617) 439-2514 if there are any questions.

Dated: June 13, 2005

Respectfully submitted,

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